Name:

at1118paper: Complete the Square (v411)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 38x = -325$$

Add $\left(\frac{-38}{2}\right)^2$, which equals 361, to both sides of the equation.

$$x^2 - 38x + 361 = 36$$

Factor the left side.

$$(x - 19)^2 = 36$$

Undo the squaring. We need to consider both $\pm\sqrt{36}$.

$$x - 19 = -6 \quad \text{or} \quad x - 19 = 6$$
$$x = 13 \quad \text{or} \quad x = 25$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 34x = -240$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 22x = -120$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 40x \;=\; 624$$

Question 4

By completing the square, find both solutions to the given equation:

$$x^2 + 40x \;=\; 384$$

Question 5

By completing the square, find both solutions to the given equation:

$$x^2 - 10x \;=\; 200$$

Question 6

By completing the square, find both solutions to the given equation:

$$x^2 - 36x \;=\; -275$$